



New Aquarius Website – What's in it For You

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Overview

- Aquarius website has been revamped with new interactive features
- Database allows information retrieval from or about:
 - Multimedia Galleries
 - News, Mission Status & Events
 - Frequently Asked Questions (FAQs)
 - Science Meetings
 - People
- Designed to better meet scientists' needs, such as:
 - Multimedia Gallery includes new science data maps
 - Education resources for public engagement efforts
- Webinars – Past & Future

Interactive Globe



National Aeronautics and
Space Administration

Aquarius

Sea Surface Salinity from Space

CONTROLS

Where's Aquarius Now?

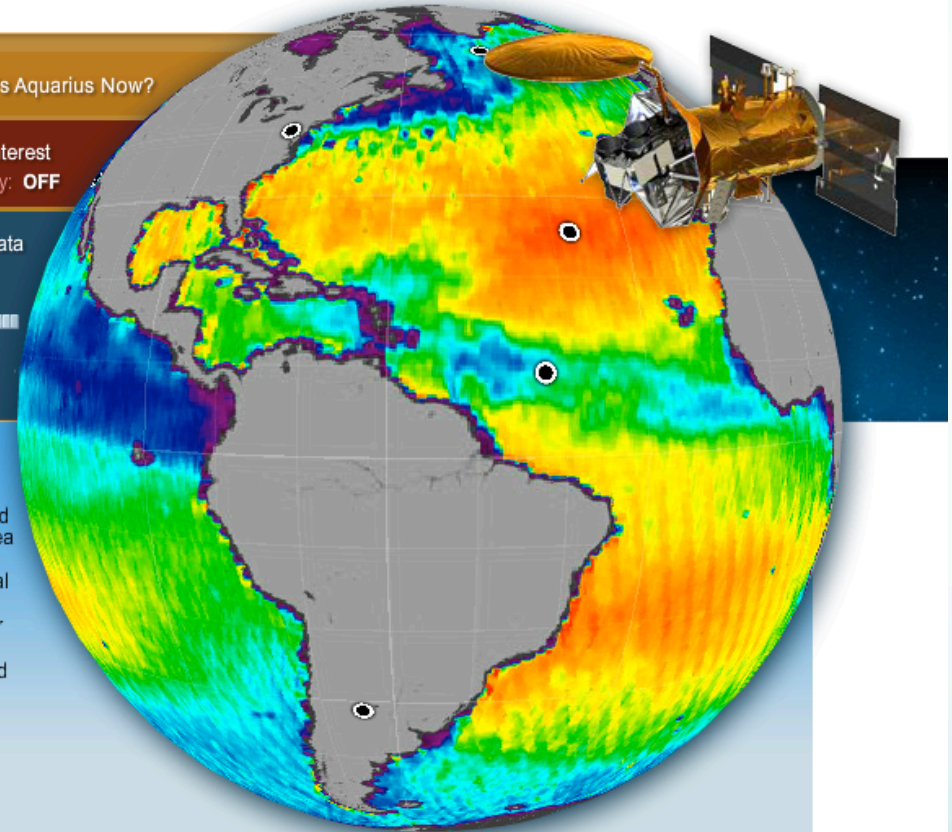
Points of Interest
Autoplay: OFF

View Monthly Data



November 2011

Legend ▾



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About Aquarius



Aquarius is a focused effort to measure Sea Surface Salinity and will provide the global view of salinity variability needed for climate studies. The mission is a collaboration between NASA and the Space Agency of Argentina (Comisión Nacional de Actividades Espaciales).

News

25-MAR-13

How Salty is that Seawater? Ask the Aquarius Satellite

[ARS TECHNICA](#) ▶

27-FEB-13

NASA's Aquarius Sees Salty

Mission Status & Events

05-DEC-13

Aquarius Soil Moisture Data Now Available at NSIDC [MORE](#) ▶

04-DEC-13

Update from Aquarius PI Gary Lagerloef: Upcoming Events and

Focus on Education

The Role of Salt

A defining characteristic of ocean water [MORE](#) ▶

Water Cycle Processes and the Ocean

86% of evaporation and 78% of

Database Information



National Aeronautics and
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Aquarius

Sea Surface Salinity from Space



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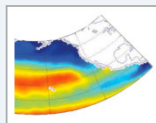
Search Criteria: lagerloef

Gallery: Images (2)



Aquarius PI Gary Lagerloef and the SAC-D Service Platform

Aquarius Principal Investigator Gary Lagerloef stands in front of the SAC-D service platform in its early stages of construction. The photo was taken at INVAP, the facility in Bariloche, Argentina where the Aquarius/SAC-D observatory was assembled. [MORE](#) ▶



Comparison of Historical and Simulated Sea Surface Salinity

Top: Average annual sea surface salinity in the North Pacific Ocean based on historical data (World Ocean Atlas 2005). Bottom: Simulated (pre-launch) average annual sea surface salinity data showing resolution expected from the Aquarius instrument (Gary Lagerloef, Earth & Space Research). [MORE](#) ▶

Gallery: Movies (6)



Aquarius: Studying the Salt of the Sea

In this video, hear from Aquarius PI Gary Lagerloef, Project Manager Amit Sen, and Project Scientist Yi Chao about the role the Aquarius satellite mission will play in the study of global ocean salinity. Learn about how ocean salinity varies from place to place, and how studying salinity from space will help create better climate models. The hope, expressed by these three scientists, is that this information will in turn allow us to make better predictions about climate change and plan for the future. [MORE](#) ▶

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New Maps of Aquarius Data

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Aquarius Data

Sea Surface Salinity

Radiometer RFI

Scatterometer RFI

Sea Surface Salinity at High Latitudes

Brightness Temperature at High Latitudes

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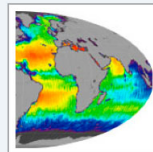
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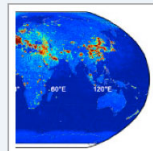
Gallery: Aquarius Data

Scientists involved with the Aquarius/SAC-D mission have a wealth of data at their fingertips, owing in large part to the immense amount of [instrumentation](#) aboard the satellite. The main focus of the mission is to detect changes in ocean surface salinity on a global scale, as shown on monthly images produced by NASA's Goddard Space Flight Center. Scientists are also able to measure salinity variance and brightness temperature at high latitudes, which are depicted in weekly maps. (View our [FAQs page](#) for an explanation of brightness temperature.)



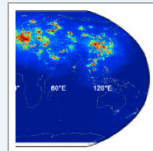
[Sea Surface Salinity](#)

These monthly composite maps, produced by Norman Kuring (NASA Goddard Space Flight Center), are based on the latest algorithms (V.2) developed by the Aquarius Calibration/Validation working group.



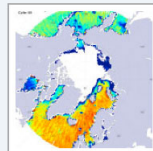
[Radiometer RFI](#)

Radio Frequency Interference (RFI) can mask the salinity signal measured by the Aquarius satellite combined instruments, i.e., the microwave radiometers and scatterometer. These monthly images, produced by Paolo de Matthaeis (NASA Goddard Space Flight Center), show global monthly RFI at 1.413 GHz, the frequency of the three radiometers on board Aquarius.



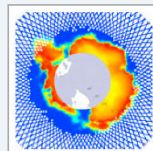
[Scatterometer RFI](#)

Radio Frequency Interference (RFI) can mask the salinity signal measured by both of the Aquarius instruments, i.e., the microwave radiometers and scatterometer. These monthly images, produced by Paolo de Matthaeis (NASA Goddard Space Flight Center), show global monthly RFI at 1.26 GHz, the frequency of the scatterometer on board Aquarius.



[Sea Surface Salinity at High Latitudes](#)

These weekly maps, produced by Ludovic Brucker (NASA Goddard Space Flight Center and Universities Space Research Association) and Emmanuel Dinnat (NASA Goddard Space Flight Center and Chapman University), are made using Aquarius sea surface salinity retrievals and show sea surface salinity at latitudes higher than 50°.



[Brightness Temperature at High Latitudes](#)

These weekly maps, produced by Ludovic Brucker (NASA Goddard Space Flight Center and Universities Space Research Association) and Emmanuel Dinnat (NASA Goddard Space Flight Center and Chapman University), show the Aquarius (L-Band, about 1.4 GHz) brightness temperature measurements recorded at vertical polarization at latitudes higher than 50°.

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Education Resources



Aquarius

Sea Surface Salinity from Space



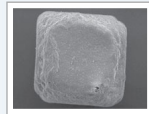
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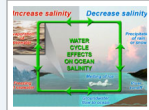
Education: Themes

Like the science of Aquarius, our educational resources fall into general themes of salinity, water cycle, ocean circulation and climate. The thematic resources listed below - from basic to advanced - include hands-on activities, online activities, movies, podcasts, frequently asked questions (FAQs), and articles. Each resource is tied to specific [student outcomes](#), which are aligned with National Science Education Standards, North American Association for Environmental Education guideline, and Ocean Literacy standards.



[What Role Does Salt Play in the Basic Properties of Water?](#)

A defining characteristic of ocean water is its relatively high concentration of dissolved salts or salinity. The concept maps, activities and videos in this section focus on relationships between salt and water, including water properties, phases, heat capacity and the hydrologic cycle.



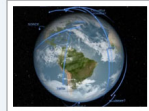
[How Do Water Cycle Processes Relate to the Ocean?](#)

Ocean surface salinity is a key tracer for understanding the freshwater fluxes into and out of the ocean system. With Aquarius data, scientists are able to relate salinity variations to evaporation and precipitation, providing insight into how the ocean responds to seasonal and annual changes in the water cycle.



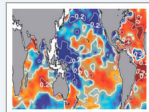
[What are the Effects of Temperature on Seawater Density and Circulation?](#)

With temperature, salinity determines seawater density and buoyancy, driving the extent of ocean stratification, mixing and water mass formation. Aquarius is highly complementary to existing satellite programs that monitor sea surface temperature because, together, salinity and temperature control density at the ocean surface.



[How Does the Ocean Influence Climate?](#)

Aquarius measures ocean surface salinity, a climate-sensitive variable that - along with satellites that measure ocean currents, sea surface temperature, winds, and ocean color - helps scientists study how global ocean circulation responds to climate change. Why salinity? Changes in ocean saltiness can affect the density of water and play a major role in ocean circulation.



[How is the Water Cycle Changing? And How are these Changes Affecting the Ocean?](#)

Studies suggest that seawater is becoming fresher in high latitudes and tropical areas dominated by rain, while in sub-tropical high evaporation regions, waters are getting saltier. This pattern appears to be related to changes in evaporation, precipitation, and ocean circulation in what some scientists call an "accelerated" water cycle.

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Science: Webinars

Aquarius works closely with COSEE-Ocean Systems for its Education and Public Outreach endeavors, including the webinar series described below.

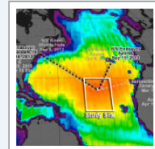


[Mapping with Aquarius/SAC-D - Spanish-Language Webinar](#)

November 22, 2013 at 3pm ET / 12pm PT / 5pm ART / 20:00 UTC

Featuring Sandra Torrusio (SAC-D Principal Investigator at CONAE), Monica Rabolli (SAC-D Deputy Investigator at CONAE), and Jorge Vazquez (Oceanographer at NASA's Jet Propulsion Laboratory)

What kinds of science questions can we answer with ocean data collected from space? Join us for this free Spanish-language webinar as we go behind the scenes of this international mission to discover how Aquarius/SAC-D data can be used to map ocean and Earth processes – from the forest landscape of El Impenetrable, and the habitat of an endangered dolphin species, all the way to Antarctica!



[Ocean Thinking: Inside and Outside the Box](#)

September 17, September 24 and October 1, 2013

Featuring Julius Busecke (Lamont-Doherty Earth Observatory, Columbia University), Stephen Riser (University of Washington), and Tom Farrar (Woods Hole Oceanographic Institute)

Last winter, scientists from the Salinity Processes in the Upper Ocean Regional Study (SPURS) research project presented a webinar series to share the interconnected and challenging ways water cycle and ocean salinity research can be done. After two ground-breaking cruises - just before the exciting last leg of the final expedition begins - we will hear back from NASA researchers about their insights into what is happening both “inside and outside” of this unique study area.



[Seeking Salt: Measuring a Key Ingredient of Climate](#)

February 26, March 5 and March 12, 2013

Featuring Eric Lindstrom (NASA Headquarters), Raymond Schmitt (Woods Hole Oceanographic Institute), and Fred Bingham (University of North Carolina at Wilmington)

Everyone knows that the ocean is salty, but did you know that salt is essential to the recipe for our entire climate and life on Earth? Hear from three prominent scientists from the SPURS research effort as they share their newest findings and contribute to the core understanding of ocean processes. This three-part series explores ways in which SPURS scientists are seeking to better understand ocean salinity - which affects everything from the water cycle to climate change.



[Los ingenieros de la NASA comparten sus historias en un Webinar en Español](#)

17 de Octubre 2012

Featuring Amri Hernandez-Pellerano (Power System Electronics Designer), Shannon Rodriguez (Microwave Communications Specialist) and Fernando Pellerano (Instrument System Engineer)

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On Behalf of the Web Team...

Thanks for listening!

Visit aquarius.nasa.gov

<annette.decharon@maine.edu>